GM ENGINEERING STANDARDS	Material Specification	9986391

Sealer - Global, Pumpable, Body Shop Weld-Thru, 20% Expanding

1 Scope

1.1 Material Description. This specification details the requirements of a pumpable, 20% expanding weld-thru sealer. The material is applied in a body shop or fabrication plant and is intended to cure in the E-coat (Electrodeposition or Electrocoat) oven. The material may be either manually or robotically applied and is intended to seal body joints against water, dust, air intrusion and corrosion. The material must be a smooth and homogeneous mixture free of air, lumps, unmixed particles and foreign materials.

1.1.1 The material must be capable of being dispensed with approved and validated production displacement pumping and application equipment.

1.1.2 It must not have a toxic or noxious odor in either the uncured or cured state.

1.1.3 In addition, the material must not adversely affect the personnel handling it.

1.1.4 The material must adhere to all GM globally approved metal substrates. The material must be compatible with GM globally approved metal-forming lubricants and must not cause defects in the phosphate, thin film or E-coat layers. In addition, it must not have corrosion-causing ingredients such as polyvinyl chloride (PVC).

1.2 Symbols. Not applicable.

1.3 Applicability. This material is typically applied to bare, oily metals in the body shop of the assembly plant. It is designed to cure in the plant E-coat ovens. It is **not** designed for application in the paint shop.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW3059	GMW3221	GMW16920

2.3 Additional References.

TMC003 Material Safety Data Sheet guidance documents (available at www.gmsupplypower.com).

3 Requirements

3.1 Material Testing and Validation. The material must be tested and validated to the requirements of GMW16920.

3.2 Emissions Testing of Interior Materials and Parts. Not applicable.

3.3 Sample Conditioning. All samples are to be conditioned prior to each requirement test to GMW3221, Code A/B/C/D.

3.4 Production Part Approval Process (PPAP). In addition to the requirements detailed in 3.1 through, all new material must comply with and meet all PPAP documentation requirements including (but not limited to): Product and Process Specific Design Matrix, Design Failure Mode and Effects Analysis (DFMEA), Product Failure Mode and Effects Analysis (PFMEA), Key Product Characteristic (KPC), Key Control Characteristic (KCC), Process Flow and Control Plan, Formulation Footprint, Process Capability Study and Measurement Systems Analysis.

3.4.1 Detailed technology specific bake charts must be developed and submitted to the appropriate GM Paint Engineer for approval.

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4 Manufacturing Process

Not applicable.

5 Rules and Regulations

5.1 Legal Regulations. All materials must satisfy applicable laws, rules, regulations and recommendations valid in the country of usage.

5.2 Language. In the event of conflict between the English and domestic language, the English language shall take precedence.

5.3 Inspection and Rejection. Samples of components or materials released to a GM material specification shall be tested for conformity with the requirements of this material specification and approved by the responsible Engineering department prior to commencement of delivery of bulk supplies.

A new approval must be received for any changes, e.g., properties, manufacturing process, location of manufacture, etc. If not otherwise agreed, all testing and documentation normally required for initial release must be completed.

It is the responsibility of the supplier to inform the customer in a timely manner, without solicitation, and to include documentation of all modifications of materials and/or processes and to apply for a new release.

5.4 Material Safety Data Sheets/Safety Data Sheets (MSDS/SDS). For new product submissions, or when a change in chemical composition of an existing product has occurred, a complete copy of the Material Safety Data Sheet/Safety Data Sheet must be submitted in compliance with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) requirements or other country-specific MSDS/SDS requirements. In addition, product MSDS/SDS submissions must be in compliance with specific country General Motors TMC003 Material Safety Data Sheet/Safety Data Sheet guidance documents where available.

5.5 All materials supplied to this standard must comply with the requirements of the International Material Data System (IMDS) and GMW3059, **Restricted and Reportable Substances.**

6 Approved Sources

Materials supplied to this specification must be approved by General Motors.

The appropriate GM Materials Engineering Department (Product Engineering or Manufacturing Engineering) must confirm materials as meeting the requirements of this specification. Only materials/sources listed in the GM Materials File (MATSPC) under this standard number have been qualified by Engineering as meeting the requirements of this standard.

7 Notes

7.1 Glossary.

MATSPC: Global repository of GM approved materials for corresponding GM Engineering Standards.

7.2 Acronyms, Abbreviations, and Symbols.

DFMEA	Design Failure Mode and Effects Analysis
E-coat	Electrodeposition or Electrocoat
GHS	Globally Harmonized System of Classification and Labeling of Chemicals
IMDS	International Material Data System
KCC	Key Control Characteristic
KPC	Key Product Characteristic
MSDS	Material Safety Data Sheet
PFMEA	Product Failure Mode and Effects Analysis
PPAP	Production Part Approval Process
PVC	Polyvinyl Chloride
SDS	Safety Data Sheet

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